

What is claimed is:

1. A data stream generation apparatus for sequentially coupling predetermined header bits of sequentially input data to a tail bit side of previously 5 input data and sequentially outputting data having a predetermined data length from said header bit side of said coupled data,

    said data stream apparatus comprising:

    a data outputting means for outputting said 10 predetermined data length's worth of data from said header bit side of the not yet output data and outputting data remaining after the output as feedback data when the data length of said coupled data which has not been output reaches said predetermined data length and for 15 outputting the not yet output data as said feedback data when the data length of said not yet output data does not reach said predetermined data length;

    a data adding means for generating adjustment data having a data length of a difference between the 20 data length of said feedback data and a data length of a whole multiple of a predetermined unit data length when said input data is the predetermined data and adding the same to said tail bit side of the feedback data; and

    a data coupling means for coupling said header 25 bit of said input data to said tail bit side of said

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feedback data and supplying the coupled data as said not yet output data to said data outputting means.

2. A data stream generation apparatus as set forth in claim 1, wherein

5       said apparatus further comprises a data length processing means for cumulatively adding the data length of said input data based on the input data length information sequentially input corresponding to said input data, subtracting said predetermined data length

10      from the cumulative data length when the cumulative data length reaches said predetermined data length, and adding the data length of said adjustment data to the cumulative data length when said input data is control data; and

15      said data output unit outputs the data of said predetermined data length when the cumulative data length of said data length processing means reaches said predetermined data length, while outputs said not yet output data as said feedback data when it does not reach said predetermined data length.

20      3. A data stream generation apparatus as set forth in claim 2, wherein said data adding means includes

      an adjustment data length setting means for setting an adjustment data length in accordance with the cumulative data length of said data length processing

25      means when said input data is predetermined data,

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an adjustment data generating means for generating said adjustment data in accordance with said set adjustment data length, and

5 an adding means for adding said generated adjustment data to said tail bit side of said feedback data, and

wherein data length processing means adds said set adjustment data length to said cumulative data length when said input data is predetermined data.

10 4. A data stream generation apparatus as set forth in claim 3, wherein said adjustment data length setting means sets said adjustment data length in accordance with a difference between a quotient obtained by dividing the cumulative data length of said data length processing means by said unit data length and said unit data length.

15 5. A data stream generation apparatus as set forth in claim 3, wherein said adjustment data length setting means inverts bit values of lower significant data of a predetermined number of bits from the least significant bit in the binary value of the cumulative data length of said data length processing means and sets said adjustment data length in accordance with data obtained by adding a predetermined value to the bit inverted lower significant data.

20 6. A data stream generation apparatus as set forth

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in claim 3, wherein said adjustment data generating means selects one data from a plurality of predetermined data in accordance with said set adjustment data length and generates adjustment data in accordance with said selected data.

7. A data stream generation apparatus as set forth in claim 3, wherein said data generating means generates data in accordance with each bit value in the binary value of said set adjustment data length for each bit, 10 selects one data from a plurality of data generated by coupling the generated data for each bit in a predetermined sequence in accordance with the bit value of at least one predetermined bit among the bits, and generates adjustment data in accordance with the selected data.

8. A data stream generation apparatus as set forth in claim 2, further comprising:

a data selecting means for selecting the sequentially input variable length data or said control 20 data in accordance with a supplied selection signal and supplying said selected input data to said data coupling means; and

a data length selecting means for selecting input data length information corresponding to said 25 variable length data or said control data and supplying

said selected input data length information to said data length processing means.

9. A data stream generation apparatus as set forth in claim 8, further comprising:

5 a variable length data coupling means for coupling a plurality of variable length data each having variable length and supplying the same to said data selecting means; and

10 a data length generating means for generating input data length information of said coupled variable length data based on the input data length information corresponding to the plurality of variable length data and supplying the same to said data length selecting means.

15 10. A data stream generation apparatus for sequentially coupling predetermined header bits of sequentially input data to a tail bit side of previously input data and sequentially outputting data having a predetermined data length from said header bit side of 20 said coupled data,

      said data stream generation apparatus comprising:

      a data outputting means for outputting said predetermined data length's worth of the data from said header bit side of the not yet output data and outputting 25

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data remaining after the output as feedback data when the  
data length of said coupled data which has not been  
output reaches said predetermined data length and  
outputting the not yet output data as said feedback data  
5 when the data length of said not yet output data does not  
reach said predetermined data length;

a data adding means for generating adjustment  
data having a data length of a difference between a sum  
of data lengths of said input data and said feedback data  
10 and the data length of a whole multiple of a  
predetermined unit data length and adding the same to  
said header bit side of the input predetermined data;

a data selecting means for selecting  
predetermined data with said adjustment data added  
15 thereto or other input data in accordance with a supplied  
selection signal; and

a data coupling means for coupling said header  
bit of said selected input data to said tail bit side of  
said feedback data and supplying the coupled data as said  
20 not yet output data to said data outputting means.

11. A data stream generation apparatus as set forth  
in claim 10, wherein

said apparatus comprises a data length  
processing means for cumulatively adding data lengths of  
25 said input data based on said input data length

information sequentially input corresponding to said  
input data and subtracting said predetermined data length  
from said cumulative data length when the cumulative data  
length reaches said predetermined data length, and

5               said data output unit outputs the data of said  
predetermined data length when the cumulative data length  
of said data length processing means reaches said  
predetermined data length, while outputs said not yet  
output data as said feedback data when it does not reach  
10        said predetermined data length.

12. A data stream generation apparatus as set forth  
in claim 11, wherein said data adding means includes

15        an adjustment data length setting means for  
setting an adjustment data length in accordance with the  
sum of the cumulative data length of said data length  
processing means and said input data length,

20        an adjustment data generating means for  
generating said adjustment data in accordance with said  
set adjustment data length, and

25        an adding means for adding said generated  
adjustment data to said header bit side of said control  
data.

13. A data stream generation apparatus as set forth  
in claim 12, wherein said adjustment data length setting  
means sets said adjustment data length in accordance with

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a difference between a quotient obtained by dividing the cumulative data length of said data length processing means by said unit data length and said unit data length.

14. A data stream generation apparatus as set forth  
5 in claim 12, wherein said adjustment data length setting means inverts bit values of lower significant data of a predetermined number of bits from the least significant bit in the binary value of the cumulative data length of said data length processing means and sets said  
10 adjustment data length in accordance with data obtained by adding a predetermined value to the bit inverted lower significant data.

15. A data stream generation apparatus as set forth in claim 12, wherein said adjustment data generating means selects one data from a plurality of predetermined data in accordance with said set adjustment data length and generates adjustment data in accordance with said selected data.

16. A data stream generation apparatus as set forth  
20 in claim 12, wherein said data generating means generates data in accordance with each bit value in the binary value of said set adjustment data length for each bit, selects one data from a plurality of data generated by coupling the generated data for each bit in a  
25 predetermined sequence in accordance with the bit value

of at least one predetermined bit among the bits, and generates adjustment data in accordance with the selected data.

17. A data stream generation apparatus as set forth  
5 in claim 12, wherein said data selecting means

selects sequentially input variable length data or said control data in accordance with said selection signal and supplying said selected input data to said data coupling means, and

10 has a data length selecting means for selecting input data length information corresponding to said variable length data or control data to which said adjustment data has been added and supplying said selected input data length information to said data length processing means.

15 18. A data stream generation apparatus as set forth in claim 17, further comprising:

a variable length data coupling means for coupling a plurality of variable length data each having  
20 variable length and supplying the same to said data selecting means;

a first data length generating means for generating input data length information of said coupled variable length data based on the input data length  
25 information corresponding to the plurality of variable

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length data and supplying the same to said data length selecting means; and

a second data length generating means for generating input data length information of control data

- 5 to which said adjustment data has been added based on the set adjustment data length and supplying the same to said data length selecting means.

19. A data stream generation method for sequentially coupling predetermined header bits of

- 10 sequentially input data to the tail bit side of previously input data and sequentially outputting data of the predetermined data length from said header bit side of said coupled data,

said data stream generation method repeating

- 15 the following steps:

a data outputting step of outputting said predetermined data length's worth of data from said

header bit side of the not yet output data and generating feedback data in accordance with the data remaining after

- 20 the output when the data length of the said coupled data which has not been output reaches said predetermined data length, or generating said feedback data in accordance with the not yet output data when the data length of said not yet output data does not reach said predetermined

25 data length;

a data adding step of generating adjustment data having the data length of the difference between the data length of said feedback data and the data length of a whole multiple of a predetermined unit data length when  
5 said input data is predetermined data and adding the same to said tail bit side of the feedback data; and

10 a data coupling step of coupling said header bit of said input data to said tail bit side of said feedback data and generating the not yet output data of  
said data output step.

20. A data stream generation method for sequentially coupling predetermined header bits of sequentially input data to the tail bit side of previously input data and sequentially outputting data of  
15 a predetermined data length from said header bit side of said coupled data,

said data stream generation method repeating the following steps:

20 a data outputting step of outputting said predetermined data length's worth of the data from said header bit side of the not yet output data and generating feedback data in accordance with the data remaining after the output when the data length of said coupled data which has not been output reaches said predetermined data  
25 length and generating said feedback data in accordance

with the not yet output data when the data length of said not yet output data does not reach said predetermined data length; and

a data coupling step of generating adjustment

- 5 data having a data length of a difference between a sum of data lengths of said input data and said feedback data and the data length of a whole multiple of a predetermined unit data length, adding the same to said header bit side of the input predetermined data,
- 10 selecting predetermined data with said adjustment data added thereto or sequentially input variable length data in accordance with an input selection signal, and coupling said header bit of the selected data to said tail bit side of said feedback data.

- 15 21. A variable length encoded data stream generation apparatus for sequentially generating variable length encoded data or predetermined control data, sequentially coupling predetermined header bits of the generated data to the tail bit side of previously generated data, and sequentially outputting data of a predetermined data length from said header bit side of said coupled data,  
said variable length encoded data stream generation apparatus comprising:
- 20 25 a variable length encoding means for

sequentially generating variable length encoded data obtained by compressing and encoding intended data or intended control data;

- a data outputting means for outputting said  
5 predetermined data length's worth of data from said  
header bit side of the not yet output data and outputting  
data remaining after the output as feedback data when the  
data length of the said coupled data which has not been  
output reaches said predetermined data length, while  
10 outputting the not yet output data as said feedback data  
when the data length of said not yet output data does not  
reach said predetermined data length;

- a data adding means for generating adjustment  
data having a data length of a difference between the  
data length of said feedback data and the data length of  
15 a whole multiple of a predetermined unit data length when  
the generated data of said variable length encoding means  
is said control data and adding the same to said tail bit  
side of the feedback data; and

- 20 a data coupling means for coupling said header  
bit of the generated data of said variable length  
encoding means to said tail bit side of said feedback  
data and supplying the coupled data as said not yet  
output data to said data outputting means.

25 22. A variable length encoded data stream

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generation apparatus for sequentially generating variable length encoded data or predetermined control data, sequentially coupling predetermined header bits of the generated data to the tail bit side of the previously 5 generated data, and sequentially outputting data of the predetermined data length from said header bit side of said coupled data,

said variable length encoded data stream generation apparatus comprising:

10        a variable length encoding means for sequentially generating variable length encoded data obtained by compressing and encoding intended data or intended control data and outputting a selection signal in accordance with the generated data;

15        a data outputting means for outputting said predetermined data length's worth of data from said header bit side of the not yet output data and outputting data remaining after the output as feedback data when the data length of the said coupled data which has not been 20 output reaches said predetermined data length, while outputting the not yet output data as said feedback data when the data length of said not yet output data does not reach said predetermined data length;

25        a data adding means for generating adjustment data having a data length of a difference between a sum

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of data lengths of said input data and said feedback data and the data length of a whole multiple of a predetermined unit data length and adding the same to said header bit side of said control data;

5           a data selecting means for selecting control data with said adjustment data added thereto or said variable length encoded data in accordance with said selection signal; and

10          a data coupling means for coupling said header bit of the selected data of said data selecting means to said tail bit side of said feedback data and supplying the coupled data as said not yet output data to said data outputting means.

23. A variable length encoded data stream  
15 generation method for sequentially generating variable length encoded data or predetermined control data, sequentially coupling the predetermined header bits of the generated data to the tail bit side of the previously generated data, and sequentially outputting data of a  
20 predetermined data length from said header bit side of said coupled data,

              said variable length encoded data stream  
generation method repeating the following steps:

              a variable length encoding step of sequentially  
25 generating variable length encoded data obtained by

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variable length encoding the intended data or intended control data;

a data outputting step of outputting said predetermined data length's worth of data from said

- 5 header bit side of the not yet output data and generating feedback data in accordance with the data remaining after the output when the data length of the said coupled data which has not been output reaches said predetermined data length and generating said feedback data in accordance
- 10 with the not yet output data when the data length of said not yet output data does not reach said predetermined data length;

a data adding step of generating adjustment data having a data length of a difference between the data length of said feedback data and the data length of a whole multiple of a predetermined unit data length when the generated data in said variable length encoding step is said control data and adding the same to said tail bit side of the feedback data; and

- 20 a data coupling step of coupling said header bit of said generated data to said tail bit side of said feedback data and generating the not yet output data of said data output step.

24. A variable length encoded data stream

- 25 generation method for sequentially generating variable

length encoded data or predetermined control data,  
sequentially coupling predetermined header bits of the  
generated data to the tail bit side of the previously  
generated data, and sequentially outputting said

- 5 predetermined data length' worth of data from said header  
bit side of said coupled data,

                  said variable length encoded data stream  
generation method repeating the following steps:

                  a variable length encoding step of sequentially

- 10 generating variable length encoded data obtained by  
variable length encoding the intended data or intended  
control data and generating a selection signal in  
accordance with the generated data;

                  a data outputting step of outputting said

- 15 predetermined data length's worth of data from said  
header bit side of the not yet output data and generating  
feedback data in accordance with the data remaining after  
output when the data length of said coupled data which  
has not been output reaches said predetermined data

- 20 length and generating said feedback data in accordance  
with the not yet output data when the data length of said  
not yet output data does not reach said predetermined  
data length; and

                  a data coupling step of generating adjustment

- 25 data having a data length of the difference between the

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sum of data lengths of said input data and said feedback data and the data length of a whole multiple of a predetermined unit data length and adding the same to said header bit side of said control data, selecting the

5 control data with said adjustment data added thereto or sequentially input variable length data in accordance with said selection signal, and coupling said header bit of the selected data to said tail bit side of said feedback data.

10 25. A camera system for sequentially generating data obtained by variable length encoding image data or predetermined control data, sequentially coupling predetermined header bits of the generated data to the tail bit side of previously generated data, and sequentially outputting data of a predetermined data length from said header bit side of said coupled data,

said camera system comprising:

an imaging means for imaging a desired image and generating image data;

20 a variable length encoding means for sequentially generating variable length encoded data obtained by variable length encoding said generated image data or desired control data;

25 a data outputting means for outputting said predetermined data length's worth of data as output image

data from said header bit side of the not yet output data  
and outputting data remaining after the output as  
feedback data when the data length of the said coupled  
data which has not been output reaches said predetermined  
5 data length, while outputting the not yet output data as  
said feedback data when the data length of said not yet  
output data does not reach said predetermined data  
length;

a data adding means for generating adjustment  
10 data having a data length of the difference between the  
data length of said feedback data and the data length of  
a whole multiple of a predetermined unit data length and  
adding the same to said tail bit side of the feedback  
data when the generated data of said variable length  
15 encoding means is said control data;

a data coupling means for coupling said header  
bit of the generated data of said variable length  
encoding means to said tail bit side of said feedback  
data and supplying the coupled data as said not yet  
20 output data to said data outputting means; and

a processing means for performing predetermined  
processing with respect to the stream of said output  
image data.

26. A camera system for sequentially generating  
25 data obtained by variable length encoding image data or

predetermined control data, sequentially coupling predetermined header bits of the generated data to the tail bit side of previously generated data, and sequentially outputting data of a predetermined data

5 length from said header bit side of said coupled data,

said camera system comprising:

an imaging means for imaging the desired image and generating image data;

a variable length encoding means for

10 sequentially generating variable length encoded data obtained by variable length encoding said generated image data or intended control data and outputting a selection signal in accordance with the generated data;

a data outputting means for outputting said

15 predetermined data length's worth of data as output image data from said header bit side of the not yet output data and outputting data remaining after the output as

feedback data when the data length of said coupled data which has not been output reaches said predetermined data 20 length, while outputting the not yet output data as said feedback data when the data length of said not yet output data does not reach said predetermined data length;

a data adding means for generating adjustment data having a data length of the difference between the 25 sum of data lengths of said input data and said feedback

data and the data length of a whole multiple of a predetermined unit data length and adding the same to said header bit side of said control data;

5 a data selecting means for selecting control data with said adjustment data added thereto or said variable length encoded data in accordance with said selection signal;

a data coupling means for coupling said header bit of the selected data of said data selecting means to  
10 said tail bit side of said feedback data and supplying the coupled data as said not yet output data to said data outputting means; and

15 a processing means for performing predetermined processing with respect to the stream of said output image data.